

PATENT

Atty. Dkt. No. APPM/008289/PPC/ECP/CKIM

REMARKS

This is intended as a full and complete response to the Office Action dated June 27, 2007, having a shortened statutory period for response set to expire on September 27, 2007. Please reconsider the claims pending in the application for reasons discussed below.

In the specification, the paragraphs 0036, 0040 and 0051 have been amended to correct minor editorial problems.

Election/Restrictions

The Examiner has required restriction to one of the following inventions under 35 U.S.C. 121:

- I. Claims 1 – 11, drawn to an apparatus for cleaning a bevel, classified in class 134, subclass 94.1.
- II. Claims 12-18, drawn to an apparatus for a cleaning cell, classified in class 134, subclass 153.
- III. Claims 19-23, drawn to an apparatus for a cleaning cell, classified in class 134, subclass 148.
- IV. Claims 24-30, drawn to a method of cleaning a bevel, classified in class 134, subclass 26.

Applicant confirms election of Group I, claims 1-11, with traverse.

Applicant submits that inventions IV and I are related as process and apparatus for its practice. Claims 1-11 recite a substrate bevel cleaning chamber. The process of claims 24-30 substantially requires the apparatus of claims 1-11, and the apparatus of claims 1-11 substantially performs the process of claims 24-30. Therefore, the process of claims 24-30 cannot be practiced by another and materially different apparatus or by hand, and the apparatus of claims 1-11 cannot be used to practice another and materially different process.

Regarding invention I and II or III, the Examiner states they are related as subcombinations disclosed as usable together in a single combination. The Examiner further states that subcombination I has separate utility such as it is designed for

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cleaning the bevel of the substrate, while apparatus II and III are designing a cleaning cell. However, Applicant submits that apparatus II and III may be used for cleaning the bevel of a substrate, and apparatus I may be used as a substrate cleaning cell.

Regarding inventions II and III, the Examiner states they are directed to related substrate cleaning cell. The Examiner further states that the inventions as claimed have materially different designs, apparatus II has a vacuum chuck with rotatable centering posts, while apparatus III has a rotatable vacuum chuck. However, Applicant submits that the vacuum chuck in apparatus II may be rotatable, just as the centering members in apparatus III may be rotatable posts. Therefore, the inventions do not have materially different designs.

Applicant respectfully requests reconsideration and withdrawal of the restriction requirement.

Claims 1-30 remain pending in the application and are shown above. Claims 12-30 stand withdrawn by the Examiner. Claims 1-11 are rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

Claim 7 is amended to correct matters of form. Claim 1 is amended to clarify the invention.

Claim Rejections – 35 U.S.C. § 103

Claims 1 and 6-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mayer et al* (U.S. Patent No. 6,537,416, hereafter '416) in view of *Anderson et al* (U.S. Patent No. 5,851,041, hereafter '041).

Claims 2, 3-5 and 9-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mayer et al* (U.S. Patent No. 6,537,416) in view of *Anderson et al* (U.S. Patent No. 5,851,041) as applied to claim 1 above, and further in view of *Adachi et al* (U.S. Publ. No. 2002/0134512, hereafter '512).

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mayer et al* (U.S. Patent No. 6,537,416) in view of *Anderson et al* (U.S. Patent No. 5,851,041) as applied to claim 1 above, and further in view of *Kurihara et al* (U.S. Patent No. 5,820,685).

Applicant respectfully traverses the rejections.

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The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2142. To establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 2143.

Regarding claim 1, the Examiner states that all the elements and limitations of claim 1 are taught by '416 in view of '041. Reference '041 teaches the use of wafer holding members (211) to secure a wafer (230) while rotating the spindle assembly (201). As such, the holding members rotate in conjunction with the spindle assembly and do not remain stationary during rotation. See Fig. 2; Col. 4, Lines 21-67.

Therefore, the cited references, alone or in combination, fail to teach at least three cooperatively rotatable substrate centering posts radially positioned around the rotatable substrate support member such that the posts remain stationary during rotation of the substrate support member, as recited in amended claim 1 and claims 2-11 dependent thereon. Applicant respectfully requests withdrawal of the rejection.

Additionally, with regard to claim 2, the Examiner states that '416 in view of '041, and further in view of '512 teaches all the elements and limitations of claim 2 except the projection of '512 being at an offset position from the center of the cap. The Examiner further states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have offset the projection from the center of the cover, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

However, "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

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Reference '512' teaches a pin (112g) with a protrusion extending from the center of its upper surface for holding a wafer in position as the wafer is spinning. Fig. 8; Fig. 13. The pin (112g) is eccentrically rotated (i.e. rotated about a point other than the center point of the pin) by a motor (114) to firmly hold the wafer. Paragraph 0087. Since the pin is eccentrically rotated into place, '512 provides no motivation for locating the protrusion off-center.

In contrast, claim 2 recites a substrate centering member positioned away from the rotational center of the cap member. The substrate centering member is positioned away from the rotational center of the cap member because the cap member (in conjunction with the vertically positioned shaft member) is rotated about its central vertical axis. When the posts are so rotated, the substrate centering members center a substrate located therebetween.

Therefore, the cited references, alone or in combination, fail to teach a substrate centering member extending upward from the cap member and being positioned away from the rotational center of the cap member as recited in claim 2 and claims 3-5, and 9-10 depending therefrom. Furthermore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to position a substrate centering member away from the rotational center of the cap member because the prior art of record fails to provide motivation or reason to make the necessary changes in the device. Applicant respectfully requests withdrawal of the rejection.

Regarding claims 3 and 4, the Examiner states that all elements and limitations are taught by '416 in view of '041, further in view of '512. The Examiner further states that '041 teaches the centering posts are linked together so they move as one, while an actuator, which can be powered by air is used to rotate the arms in one cooperative movement. However, as stated in the present application, the reduced friction actuator operates similarly to conventional actuators during the centering process; however, once the substrate is centered, the reduced friction actuator overcomes the bowing and shifting off center challenges associated with conventional actuators. Applicant submits that the use of a conventional air powered actuator (as taught in '041) does not teach or suggest a reduced friction actuator having a reduced friction cylinder as recited in the present claims.

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Therefore, the cited prior art, alone or in combination, fails to teach, show or suggest a substrate centering actuation mechanism, comprising at least three rotatable centering post receiving receptacles, a linkage assembly connecting each of the at least three rotatable centering post receiving receptacles, and a reduced friction actuator in communication with the linkage as recited in claim 3 and claims 4, 5, and 10 depending therefrom. Applicant respectfully requests withdrawal of the rejection.

Additionally, the cited prior art, alone or in combination, fails to teach, show or suggest a reduced friction actuator comprising an air actuated piston assembly positioned in a reduced friction cylinder as recited in claim 4. Applicant respectfully requests withdrawal of the rejection.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



Keith M. Tackett
Registration No. 32,008
PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd. Suite 1500
Houston, TX 77056
Telephone: (713) 623-4844
Facsimile: (713) 623-4846
Attorney for Applicant(s)

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